

Epacris sparsa (Epacridaceae) reinstated

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Abstract

Powell, J.M. and James, T.A. (National Herbarium of New South Wales, Royal Botanic Gardens, Sydney, NSW, Australia 2000) 1993. *Epacris sparsa* R. Br. (Epacridaceae) reinstated. *Telopea* 5(2): 375–380. The poorly known and inadequately described species, *Epacris sparsa* R. Br., is re-examined on the basis of recent collections of flowering and fruiting material. Notes on habitat and conservation status are given. It appears to be most closely related to *E. impressa* and *E. longiflora*.

Introduction

Epacris sparsa was described by Robert Brown (1810) from specimens collected from the Grose River area, New South Wales. The material was past flowering but the persistent long style and the *Epacris*-type ovary enabled him to place it correctly in the genus *Epacris*. In 1855 other specimens, again without flowers, were presented at the Paris Exhibition, as noted by Bentham (1869): 'Specimens without flower of the Sydney Woods collection, Paris Exhibition, 1855, n. 148, *McArthur*, said to be from a shrub of 10 to 15 ft., appear from the foliage to be this species, which, however, must remain in some measure doubtful till more perfect specimens have been examined.'

Efforts to collect further specimens were unsuccessful and consequently the species was relegated to a footnote as a doubtful species in the first census of New South Wales plants (Maiden & Betche 1916). Maiden noted to Betche (correspondence 17 September, 1906) 'I have made a special [excursion] to the Grose River to find this [species] but could find nothing to com.[compare] with it. No one has found it since. I think it ought to [be] put in the *Species dubiae* [of] our Census'. Betche had, in fact, written to the British Museum (Natural History) about the species in 1906 and received a reply from J. Britten that the 'single specimen of *Epacris sparsa* is far from satisfactory ...' (correspondence J. Britten to E. Betche, October 16, 1906; held at NSW). He forwarded a fragment, however, and provided a transcript of Brown's manuscript description.

In the 1981 census of New South Wales plants it was listed as 'previous record not substantiated' (Jacobs & Pickard 1981). Two specimens of *Epacris sparsa*, one fragmentary, the other with leaves and flowers, were collected in 1970 from the Grose River below Faulconbridge Point by L.H. Williams and D. Perrin respectively. Although deposited at the National Herbarium of New South Wales the significance of these specimens was not recognized at the time. A more recent collection, by T.A. James in 1991 from the Grose River at Avoca Vale Reserve, prompted further investigation and recognition of its significance, and the subsequent collection of flowering material allows more complete documentation of the species.

Epacris sparsa R. Br.

Brown (1810: 551).

TYPE CITATION: '(J.) v.v.'

LECTOTYPE (here designated): NEW SOUTH WALES: Central Coast: Grose River, R. Brown, 1803-5 (BM).

A slender erect shrub 30-90 cm high, lignotuberos; *stems* brown or red-brown, glabrous, with smooth to somewhat stringy bark; *branchlets* pinkish red-brown, villous, with prominent cup-shaped leaf scars. *Leaves* evenly spaced, erect to spreading (Figure 1a), narrowly ovate or elliptic (Figure 1f), 11.2-19.5 mm long, 2.4-5 mm wide, acute, apiculate or mucronulate, the tip 0.1-0.5 mm long; base cuneate; lamina flat (Figure 2a), concolorous, glabrous, with veins inconspicuous above, striate below, actinomorphic with some branching to the margin; margin with thicker cuticular rim abaxially, entire; *petiole* distinct, often reddish, 1-2.2 mm long, glabrous or pubescent. Young leaves pink-red. *Flowers* conspicuous, spreading to pendant (Figure 1a), solitary in upper axils; *peduncles* 2.4-3.2 mm long, villous, sparsely clothed with a few small narrowly ovate, acute bracts. *Bracts* subtending flower 10-12, scarious, increasing in size to sepals, ovate to sub-orbicular, 1.2-3 mm long, 1-1.6 mm wide, acute, striate, glabrous except for the minutely fringed margins. *Sepals* ovate-elliptic, 3.1-3.8 mm long, 1.4-1.6 mm wide, acute, glabrous except for the minutely fringed margins. *Corolla-tube* white, long-cylindrical and well exceeding sepals (Figure 1c-e), 16.2-20 mm long, 3.5-5 mm diameter, glabrous; *lobes* much shorter than tube, erect, ovate to sub-orbicular, 2.6-2.9 mm long, 2-2.5 mm wide, obtuse, glabrous. *Anthers* hidden in tube, rectilinear, reddish, 2-2.2 mm long, attached to the filament at or just above the midpoint; *filaments* terete, 0.2-0.5 mm long, inserted 1-1.5 mm below the base of the lobes. *Ovary* oblate (Figure 2c), 0.8-0.9 mm high, 1.2-1.3 mm wide, lobed, glabrous; *style* filiform, terete, 20.4-20.5 mm long, inserted to midpoint of ovary; *stigma* lobed, 0.2-0.25 mm high (Figure 2d); *nectary* 0.2-0.4 mm high, with shallowly lobed upper margin (Figure 2c). *Capsule* 1.4-1.8 mm high, 5-lobed (Figure 1b); seeds ovoid to sub-deltoid, 0.75-0.85 mm long, 0.4-0.65 mm wide, the surface evenly reticulate (Figure 2b,e).

FLOWERING AND FRUITING TIME: Flowers May-June; capsules ripe in September.

DISTRIBUTION: Known only from the lower Grose River area on the Central Coast of New South Wales.

HABITAT: Found at the base of rock faces or on rock platforms in the riparian flood zone, confined to pockets of damp sandy clay soil derived from exposed shale lenses between Hawkesbury Sandstone beds. The sites are frequently subject to high moisture from wind-driven spray and would be inundated during periods of high rainfall. Associated species include *Tristaniopsis laurina*, *Leptospermum* sp. aff. *trivervium*, *Allocasuarina littoralis*, *Acacia longifolia*, *Grevillea sericea* and *Lomandra fluviatilis*.

POPULATION SIZE: Four populations are known. The largest, of about 150 plants, occurs in the Avoca Vale Reserve, south-west of North Richmond, and a smaller population, of about 30 plants, is present near Falconbridge in the Blue Mountains National Park. The other two populations are much smaller.

CONSERVATION: A conservation status of 2VC is appropriate following the criteria of Briggs & Leigh (1988).

NOTES: *Epacris sparsa* appears to be most closely related to *E. impressa* Labill. and *E. longiflora* Cav. and more distantly related to *E. calvertiana* F. Muell. These taxa all have long-tubed smooth-surfaced corollas (tube 1.5-5 times the sepal length), and corolla lobes much shorter than the tube (lobes $\frac{1}{3}$ - $\frac{1}{2}$ th length of tube). The anthers are linear, $\pm$ hidden in the throat, inserted 1-1.5 mm below the base of the

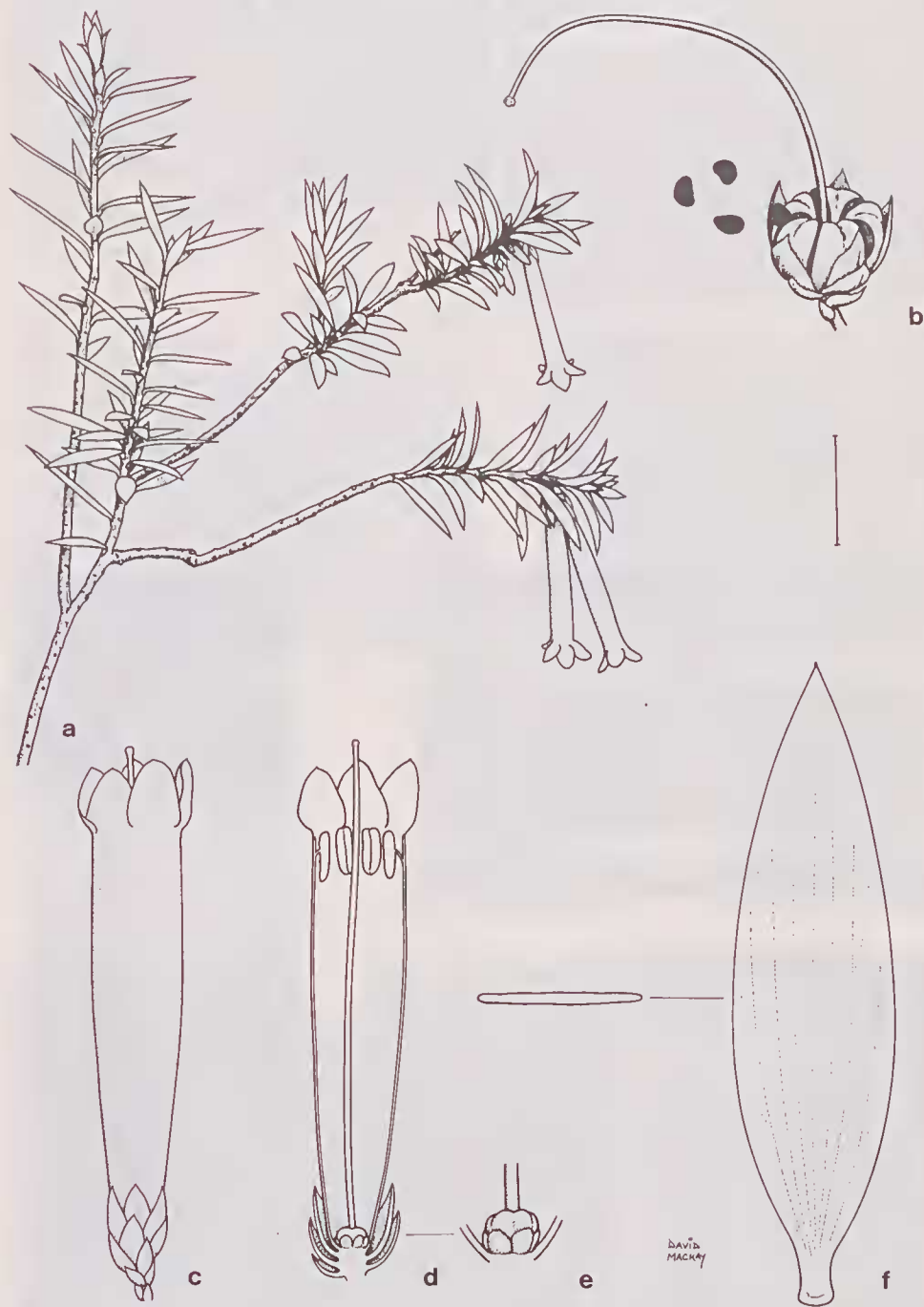


Figure 1. Flowering branch, flower and fruit structure of *Epacris sparsa*. **a**, Flowering branch (scale bar = 15 mm); **b**, fruit and seed (scale bar = 3 mm); **c**, **d**, flower and flower section (scale bar = 5 mm); **e**, detail of ovary and nectary (scale bar = 3 mm); **f**, detail of leaf and transverse section (scale bar = 3 mm). **a**, **c**–**f**, Powell 4817; **b**, James 1249 & Kodala.

corolla lobes; the filaments are very short, terete and attached to the anther above the midpoint. The ovary is oblate, the style longer than the tube and the stigma clearly lobed. The seeds are usually ovoid and the surface evenly reticulate. The main differences between the species (Table 1) are in leaf attributes, flower position and abundance, number of bracts subtending the flowers, style thickness, nectary margin, and capsule and seed size. Pollen tetrad size and surface ornamentation (Figure 3) provide further evidence of the relationship of *E. sparsa* to the other species listed. In tetrad size *E. sparsa*, with grains ranging 44.7–55.1 μm (mean 50.5 μm), is intermediate in size between *E. impressa* (range 44.9–49.3, mean 47 μm), *E. calvertiana* (range 44.4–50.2, mean 46.3 μm) and *E. longiflora*, with grains ranging 54–60.1 μm (mean 57.6 μm). All have pollen tetrads with finely fossulate surfaces and smooth colpus margins. In *E. sparsa* the lumen is smaller than in *E. longiflora* but in both it reduces in size towards the poles and colpi, whereas in *E. impressa* and *E. calvertiana* lumen size is more constant over the entire surface.

SELECTED SPECIMENS: NEW SOUTH WALES: Central Coast: Grose River, Blue Mountains National Park, James 1316, Hind, Chapple & Radford, 21 June 1992 (NSW), Perrin 1, May 1970 (NSW); Linden Creek, Blue Mountains National Park, James 1317, Hind, Chapple & Radford, 21 June 1992 (NSW); Grose River, Avoca Vale Reserve, James 1249 & Kodela, 15 Sep 1991 (NSW); Burrallow Creek, Powell 4817, 23 May 1992 (NSW).

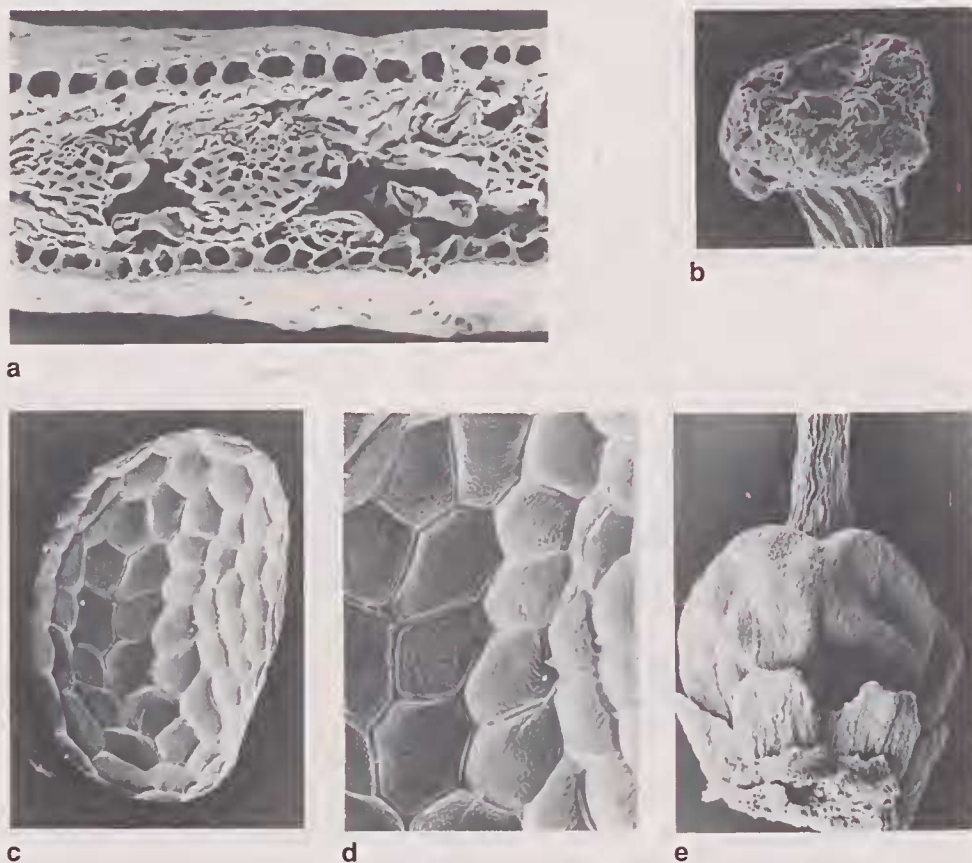


Figure 2. *E. sparsa*. Scanning electron micrographs of a, transverse section of leaf (x 250); b, stigma (x 80); c, seed (x 55); d, surface of seed (x 110); e, stylebase, ovary and nectary (x 40).

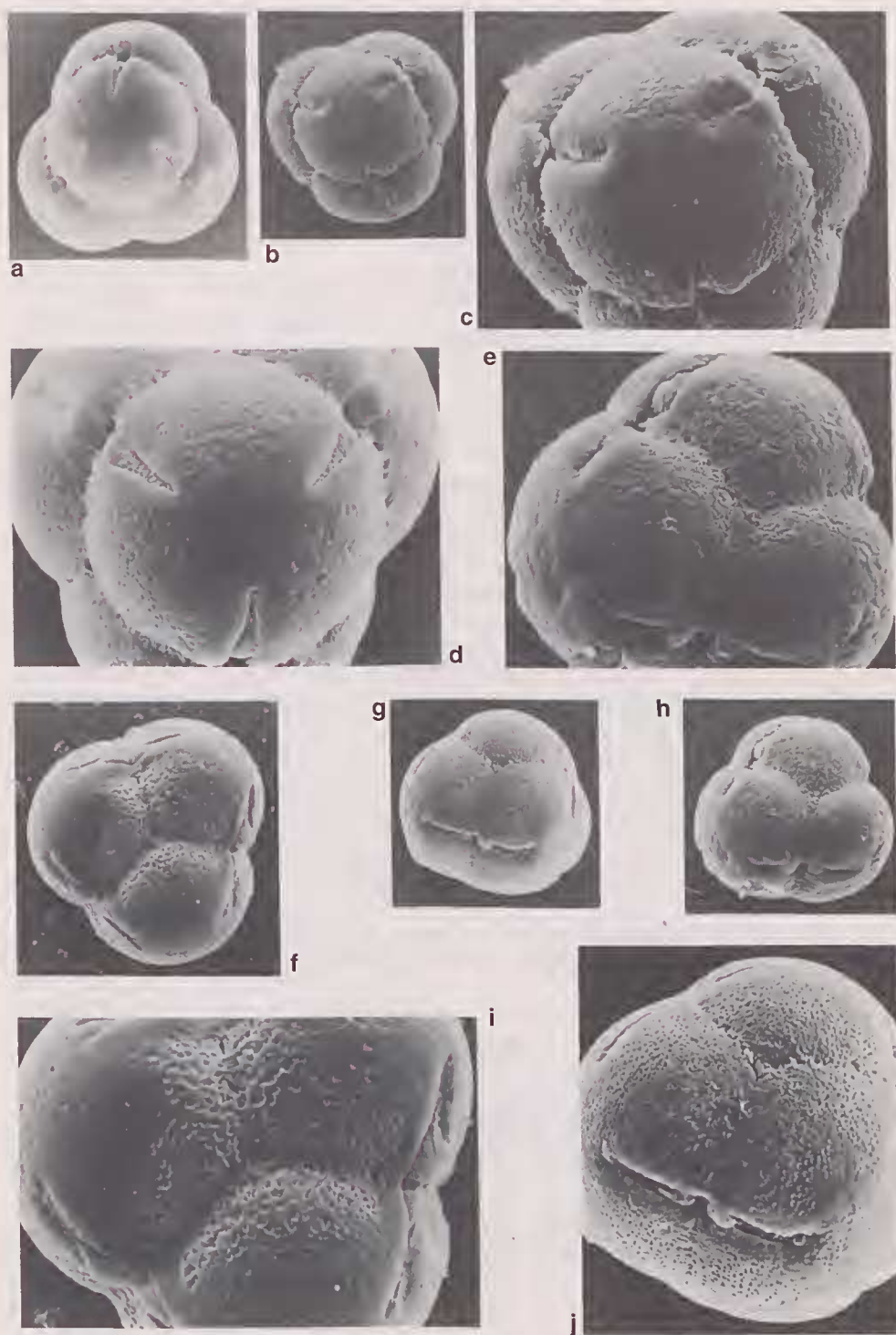


Figure 3. Pollen tetrads and pollen surface sculpture of *E. sparsa* and related species. a,b,f-h, tetrads, $\times 550$; c-e,i,j, tetrad surface detail, $\times 1100$. a,d, *E. sparsa* polar view; b,c, *E. impressa* polar view; e,h, *E. sparsa* equatorial view; f,i, *E. longiflora* equatorial view; g,j, *E. calvertiana* equatorial view.

Table 1. Differences between *E. sparsa* and related species.

Attribute	<i>E. sparsa</i>	<i>E. impressa</i>	<i>E. longiflora</i>	<i>E. calvertiana</i>
Leaf shape	narrowly ovate or elliptic	ovate to linear-lanceolate	ovate	elliptic to ovate
Leaf apex, tip	acute, apiculate or mucronulate	acute-acuminate, aristate	acuminate, aristate	subulate
Leaf base	cuneate	truncate	cordate or obtuse	cuneate
Leaf margin	entire, thickened	scabrous	scabrous	scabrous
Petiole length (mm)	1–2.2, distinct	<0.5, indistinct	0.6–1.1, distinct	0.9–1.4, distinct
Flower position, abundance	spreading, few	spreading to pendant, many	pendant, many	spreading, few
Number of bracts	10–12	15–24	15–18	20–26
Flower colour	white	white, pink or red	red-tubed, white-lobed or all white	white, cream or tube pink to red
Style thickness	filiform	thick, inflated above ovary	filiform	filiform
Nectary margin	shallowly lobed, and toothed	rounded	irregularly toothed	irregularly toothed
Capsule height (mm)	1.4–1.8	2.2–2.7	2.4–3.7	2.6–3.0
Mean seed size (mm)	0.81 x 0.52	0.76 x 0.44	0.74 x 0.5	0.58 x 0.39

Acknowledgements

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